THE MALAWI NATIONAL EXAMINATIONS BOARD

2024 MALAWI SCHOOL CERTIFICATE OF EDUCATION EXAMINATION

CHIEF EXAMINER'S REPORT

MATHEMATICS (M131/I & II)

General Comments On:

A. Quality of the Paper

The 2024 MSCE Mathematics papers I and II covered the syllabus adequately, the level of difficulty of the questions and the language used was appropriate for the candidates. The papers compared favourably with those of the previous years.

B. Performance of the Candidates

Generally the performance was average. Most candidate's responses did not reflect adequate masterly of the content from MSCE Mathematics syllabus. Some basic skills were mostly seen missing as evidenced by their responses. This could be a result of syllabus not fully covered and probably some contents being overlooked by teachers.

C. Candidates Performance on Individual Questions

PAPER I

Question 1

The question required candidates to simplify $\frac{6}{\sqrt{32}}$ without using a calculator. It was popular question and almost all candidates attempted it. The performance was average as many candidates who attempted the question got at least a mark.

The following common errors were made

(i) $\frac{6}{\sqrt{32}} = \frac{\sqrt{32}}{\sqrt{32}}, \frac{6}{\sqrt{32}} + \frac{6}{\sqrt{32}} instead\ of\ \frac{6}{\sqrt{32}} \times \frac{\sqrt{32}}{\sqrt{32}}$

(ii) changing the number under the radical sign i.e. $\sqrt{32}$ changing to $\sqrt{36}$, $\sqrt{33}$ leading to the problem looking like $\frac{6}{\sqrt{36}}$ or $\frac{6}{\sqrt{33}}$ and proceeding solving it wrongly just like in (i)

(iii) when rationalising some candidates multiplied by the same fraction i.e. $\frac{6}{\sqrt{32}} \text{x} \frac{6}{\sqrt{32}}$

(iv) failure by most candidates to simplify $\sqrt{32}$ by writing $8\sqrt{2}, 4\sqrt{16}, 2\sqrt{4}, 2\sqrt{16}$

(v) in an attempt to rationalize the denominator some candidates could use conjugate i.e. $\frac{6}{\sqrt{32}} x \frac{-\sqrt{32}}{-\sqrt{32}}$

(vi) failure to write factors of $\sqrt{32}$ as $\sqrt{16+2}$

Question 2

The question required candidates to factorise completely 10 + 8 *m* – 24 *m*. The question was very poplar almost all candidates attempted the question. The question demanded the following skills

- factorization
- finding common factor
- factorising by grouping

The performance was average, most candidates got at least 2 marks. The following common errors were made

(i) failure to factor out 2

(ii) solving an expression as an equation

(iii) dividing by a negative one throughout

(iv) forgetting the factored out 2 in the final answer i.e. (1 + 2 *m*) (5 – 6 *m*) instead of 2 (1 + 2 *m*) (5 – 6 *m*)

(v) Failure to find factors of 240 m^2 or 60 m^2 i.e.

240 m^2 = 120 + 120 *m* , 80 m x 3 *m*

120 *m* + 2*m*, 24 m x 10 *m*

60 m^2 = 12 *m* x 5 *m*, 20 m x 3 *m*

4 *m* x 15 *m*

(vi) producing factors without the variable m i.e. 10 and 6 or 20 and 12

(vii) changing the variable from *m* to *x* so that the expression become $10 + 8x - 24x^2$

Question 3

The question required candidates to make k the subject for $x = \frac{b-k^3}{k^3}$. It was a popular question as most candidates attempted it. This question registered average performance by the candidates.

The following common errors were made:

(i) changing the question to either a square root from cubing e.g. $x = \frac{b-k^2}{k^2}$ or $x = \sqrt{\frac{b-k^3}{k^3}}$

(ii) some candidates could add k^3x with k^3 and get $2k^3$ instead of multiplying to clear the fraction

(iii) taking out the cube first before factorizing i.e. $xk^3 = b - k^3$ written as $xk = b - k$

Question 4

The question required candidates to calculate the domain for the function $g(x) = \frac{2\sqrt{x}}{3} + 1$ when the range is 6. It was a popular question. The question demanded the following skills

- substitution
- factorization by grouping terms
- dissolving fractions

Candidates registered below average performance

Common errors:

(i) failure to dissolve fractions e.g. multiplying the denominator 3 by the coefficient 2 to get 6

(ii) failure to multiply denominator 3 to each term

(iii) adding denominator 3 to the constant 6 to get 9

(iv) failure to remove the coefficient 2 e.g. instead of dividing on both sides, they were adding or subtracting in trying to clear the fraction.

Question 5

The question required candidates to calculate the angle **ABC** in a circle **ABCD** with centre **O** in which **BC** = **CD** angle **DAB** = 52^o. It was not a popular question, not every candidate attempted it. The following common errors were made:

a. - failure to present an angle properly using letters i.e. **AB** instead of angle **ABD** others could write **BD** or **ABCD** or just **B**

- they could write **AB** = 90^o, **BD** = 90 angle **ABCD** = 90 or angle **B** = 90

b. - failure to relate angles i.e.

$\angle$ **BAD** = $\angle$ **BCD** instead of $\angle$ **BAD** + $\angle$ **BCD** = 180^o

c. failure to identify and use isosceles triangle i.e Δ **ABD** was treated as isosceles by writing $\angle$ **BAD** = $\angle$ **ADB** = 52^o instead of Δ **BCD** where $\angle$ **CBD** = $\angle$ **CDB** = 52^o

d. some candidates applied Pythagoras theorem as well as trigonometric ratios e.g **BC**^{2} + **CD**^{2} = **BD**^{2} others could even introduce the cosine rule i.e. $b^2 = -a^2 + c^2 - 2ac$ Cos B instead of using angle properties (theorem)

Question 6

The question required candidates to find the value of $\frac{1}{2} + (\underline{a} + \underline{b})$ given that $\underline{a} \doteq \begin{pmatrix} 2 \\ 6 \end{pmatrix}$ and $\underline{b} \doteq \begin{pmatrix} -8 \\ 3 \end{pmatrix}$. The question was very popular and most candidates got at least 2 marks. However the following common errors were made:

(i) failure to properly substitute the vectors i.e. $\begin{pmatrix} -8 \\ 3 \end{pmatrix} - \begin{pmatrix} 2 \\ 6 \end{pmatrix}$ instead of $\begin{pmatrix} 2 \\ 6 \end{pmatrix} - \begin{pmatrix} -8 \\ 3 \end{pmatrix}$

(ii) some candidates could write as a matrix e.g $\begin{pmatrix} 2 & -8 \\ 6 & 3 \end{pmatrix}$

(iii) some candidates could present vector elements as coordinates e.g. $(2,6) - (-8, 3)$ instead of $\begin{pmatrix} 2 \\ 6 \end{pmatrix} - \begin{pmatrix} -8 \\ 3 \end{pmatrix}$

(iv) failing to multiply $\left[\begin{pmatrix} 2 \\ 6 \end{pmatrix} - \begin{pmatrix} -8 \\ 3 \end{pmatrix}\right]$ by a scalar $\frac{1}{2}$ e.g. $\frac{1}{2}\left[\begin{pmatrix} 2 \\ 6 \end{pmatrix} - \begin{pmatrix} -8 \\ 3 \end{pmatrix}\right]$

Question 7

The question required candidates to find the value of *b*, give the gradient for the line joining points B = 4, 2 b) and C = (6, -8) as 7. It was a very popular question as it was attempted by most candidates. Candidate's performance was above average. The following common errors were made:

(i) using distance formula

e.g. $\sqrt{(-8-2b)^2+(6-4)^2}=7$

(ii) applying the midpoint like

$$\frac{-8+2b}{2},\frac{6+4}{2}=7$$

using wrong gradient formula e.g.

$$m=\frac{x_2-x}{y_2-y_1},=7 \qquad m=\frac{y_2-x_1}{x_2-y_1}$$

or $m=\frac{y_1+y_2}{x_1-x_2}$,

some candidates were failing to simplify to get negative value i.e.

$$\frac{-8-2b}{6-4}=7$$

$$-2b=22$$

$$b=11$$

instead of getting a negative eleven they could get a positive eleven.

(iii) failure to clear fraction i.e.

$$2x\frac{-8-2b}{2}=7x2$$
$$16-2b=14$$
$$-2b=-2$$
$$b-1$$

Instead of

$$(2)\frac{-8-2b}{6-4}=7x2$$

$$-8-2b=14$$
$$-2b=22$$
$$b=11$$

Question 8

The question required candidates to calculate the value of *k*, when the polynomial x^3+5x^2-4x+k is divided by $(x-2)$. Most candidates attempted it as it was a popular question. Candidates' performance was above average.

Common errors

(i) most candidates could equate the polynomial to a zero instead of the given remainder i.e. $x^3+5x^2-4x+k=0$ instead of $(2)^3+5(2)^2-4(2)+k=5k$

(ii) instead of $20+k=5k$ some candidates could write $20k=5k$

(iii) some could equate $x-2=5k$ instead of equating to zero.

Question 9

The question required candidates to find the value of **U**, when the quantity **W** varies directly as **V** and the square of **U**; when **W** = 63 and **V** = 3.5. Candidates' performance was above average as evidenced by most candidates attempted it.

Common errors

(i) most candidates failed to interpret "and" as addition as most of them could write $\mathbf{W}\propto\mathbf{V}+\mathbf{U}^2$ instead of $\mathbf{W}\propto\mathbf{VU}^2$

(ii) failure to interpret direct joint variation as an inverse $W\propto\frac{V}{U^2}$

(iii) square rooting instead of squaring the U, i.e. $W\propto\sqrt{VU}$ or $V\propto V+\sqrt{U}$

Question 10

The question required candidates to calculate the value of x in a circle **KLMN**, with centre **O**. Chord **KM** and **LN** intersect at right angles such that **OP** = 3 cm **PM** = x and **LM** = 8 cm. The question was not popular and candidates got at least a mark.

Common errors:

(i) equating **OL**= km and use the concept wrongly.

(ii) taking **LM** as the W the radius of the circle

(iii) some could write **OL** = **LM** and take triangle **OLM** as an isosceles one

(iv) failure by most candidates to interpret that **OL** = **OM** = **OM**

(v) some could take **LM** as diameter instead of **KM**

Question 11

The question required candidates to solve an equation $3x^2 + 6x - 2 = 0$ giving the answer correct to three significant figures. The question was very popular. Those who attempted it got at least 2 marks for the subtraction and simplification.

Common errors:

(i) failure by most candidates to complete the dividing line in the quadratic formula i.e.

$b\pm\frac{\sqrt{b^2-4ac}}{2a}$ instead of $x = \frac{b\pm\sqrt{b^2-4ac}}{2a}$

(ii) most candidates could use the wrong quadratic formula i.e. $x = \frac{b\pm\sqrt{b^2-2a^2c}}{2a^2c}$

or $x= \frac{b\pm\sqrt{4ac-b^2}}{2ac}$

(iii) failure to substitute values correctly in the quadratic formula

(iv) failure by most candidates to round up figures to three significant figures e.g. 0.29, 0.290, or -2.291 as to three significant figures instead of 0.291or -2.29

Question 12

The question required candidates to write down the three inequalities from the graph. The question was fair and popular. Performance by most candidates was below average.

Common errors

(i) most candidates could upset the values of x and y when calculating the gradient into the $m = \frac{0-6}{4-0}$ *or* $\frac{x^2-x,}{y_2-y,}$ instead of $= \frac{4-0}{0-6} = m$ *or* $\frac{y_2-y,}{x_2-x,}$

(ii) some candidates could add the y- value and *x*- value i..em *or* $\frac{y_2-y,}{x_2-x,}$ other than getting the difference.

(iii) failure to insert the correct inequality symbol i.e. $x = \geq 1$ y = ≥ *0* instead of $y \geq 0$ and $x \geq 1$.

Question 13

The question required candidates to simplify $\frac{\tan 30°}{\cos 60°}$ without using a calculator and leaving

the answer with a rational denominator. It was not popular as many candidates did not attempt it. Those who attempted it got at least a mark. It is a question that has registered poor performance by most candidates.

Common errors

- failure by most candidates to come up with trigonometric ratios for tan 30^o and cos 60^o
- some candidates could use a calculator
- some who attempted it could leave the answer $\frac{2}{\sqrt{3}}$ un rationalized instead of $\frac{2\sqrt{3}}{3}$
- some candidates could divide $\frac{\tan 30°}{\cos 60°}$ and got a $\frac{1}{2}$ since they could simply cancel out the terms.

Question 14

The question required candidates to find the ratio of the corresponding sides for the two similar objects whose volumes were 56 cm^3 and 189 cm^3. The question was popular and most candidates performed poorly.

Common errors:

- bringing simultaneous equations e. g. $2x + 2y = 56$
  $2x + 2y = 189$
- dividing the given volumes e.g. $\frac{56}{189}$ or $\frac{189}{56}$
- drawing rectangles, cylinders and even pie charts.

Question 15

The question required candidates to calculate the value of x from the given table showing frequency distribution of books owned by students at a certain school. It was a popular question and many candidates who got it correct. Those who failed made the following error:

- failure to interpret information from the given table i.e. $\overline{x} = 4 + 8 + x + 7$
  $= 11$
  $19 + x = 11$
  or $4 + 8 + x + 7 = 2 + 5 + 3 + 1$
  $19 + x = 11$ instead of $\frac{(4 \times 2)+(8 \times 5)+ (x \times 3)+ (7 \times 1)}{11} = 11$

Question 16

The question required candidates to calculate the common ratio for a geometric progression whose fourth term was 3 and ninth term 96. Many candidates attempted this question and the performance was above average. A few candidates that failed made the following errors:

- failure to come up with the nth term of the GP i.e. nth term = $a + (n - 1)d$, $ar = 96$, $ar = 3$ instead of $ar^3 = 3$ and $ar^8 = 96$.
- failure to eliminate the first term as they were seen subtracting e.g. - $\begin{pmatrix} ar^8 = 96 \\ ar^3 = 3 \end{pmatrix}$, getting $r^5 = 93$ instead of dividing i.e. $\frac{ar^8}{ar^3} = \frac{96}{3}$ to $r = 2$

Question 17

The question required candidates to calculate the volume of an object made of a cylinder of height 10 cm, radius 3 cm and cone whose slant height was 5 cm. The question was popular and over 75% of the candidates who got it correct.

Common errors:

- using πrd, $\pi r^3 d$, $\frac{3}{4}\ \pi rd$ for the volumes of a cone and cylinder instead of $\frac{1}{3}\ \pi r^2 h$ for the cone and $\pi r^2 h$ for the cylinder.
- failure by most candidates to calculate the vertical height of the cone
- using slant height 5 cm for the cone instead of 4 cm

Question 18

The question required candidates to calculate the coordinates of point **M** after a translation. The question was very popular and many candidates scored full marks. The few who failed made the following errors:

- failure to come up with a translation vector as most of them wrote $\begin{pmatrix}7\\2\end{pmatrix}$ instead of $\begin{pmatrix}-2\\7\end{pmatrix}$
- writing $\begin{pmatrix}-1\\4\end{pmatrix}$ + $\begin{pmatrix}7\\2\end{pmatrix}$ or $\begin{pmatrix}7\\2\end{pmatrix}$ - $\begin{pmatrix}-1\\4\end{pmatrix}$

Question 19

The question required candidates to calculate the value of a given that

$\frac{1}{2}\begin{pmatrix}4 & 6\\-8 & 0\end{pmatrix} - \begin{pmatrix}2 & a+3\\6 & -1\end{pmatrix} = \begin{pmatrix}0 & 5\\-10 & 1\end{pmatrix}$. The question was very popular and many candidates got it correct. However, the common errors were:

- subtracting the matrices before multiplying by the scalar first.
- multiplying the top row in the first matrix by a 1 and the bottom row by a 2, e.g.
  $\begin{pmatrix}4\times 1 & 6\times 1\\-8\times 2 & 0\times 2\end{pmatrix} - \begin{pmatrix}2 & a+3\\6 & -1\end{pmatrix} = \begin{pmatrix}0 & 5\\-10 & 1\end{pmatrix}$.

Question 20

The question required candidates to calculate the deceleration of an object. The question was popular and many candidates scored all the marks.

Common errors

- equating the area of one shape to 84, i.e. area of a rectangle

  $L \times V = 84$ or 8 X V = 84

- dividing V by 12
- adding numbers on the x – axis (time)

PAPER II

Section A

Question 1a

The question required candidates to simplify a surd $\frac{\sqrt{5}-3\sqrt{3}}{2\sqrt{3}+\sqrt{5}} \; x \; \frac{2\sqrt{3}+\sqrt{5}}{2\sqrt{3}+\sqrt{5}}$ some changed numbers i.e. $3\sqrt{3} + \sqrt{3}$ as a denominator. It was a popular question.

Common errors:

- some candidates conjugated the numerator i.e. $\frac{\sqrt{5}-3\sqrt{3}}{2\sqrt{3}+\sqrt{5}} \; x \; \frac{\sqrt{5}+3\sqrt{3}}{\sqrt{5}+\sqrt{3}}$
- candidates also wrongly applied difference between squares i.e.

$$\frac{\sqrt{5}-3\sqrt{3}}{2\sqrt{3}+\sqrt{5}} \; x \; \frac{2\sqrt{3}-\sqrt{5}}{2\sqrt{3}-\sqrt{5}} = \frac{(\sqrt{5}-3\sqrt{3})\;(2\sqrt{3}-\sqrt{5})}{(2\sqrt{3}-\sqrt{5})^2}$$

- cancelling like terms before simplifying i.e.

$$\frac{(\sqrt{5})(2\sqrt{3}) - (\sqrt{5})(\sqrt{5}) - (3\sqrt{3})(2\sqrt{3})(+(3\sqrt{3})(\sqrt{3})}{(2\sqrt{3})(2\sqrt{3}) - (2\sqrt{3})(\sqrt{5})(\sqrt{5})(2\sqrt{3}) - 5}$$

- struggling to expand the numerator. Most candidates attempted but got 1 mark on the conjugate.

Question 1b

The question required candidates to simplify algebraic fractions $\frac{a^2+2ab+b^2}{a^2-b^2}$.

Candidates were supposed to apply perfect square on numerator as well as difference between 2 squares- denominator. It was attempted by most candidates and got 1 mark out of 4

Common errors:

- grouping numerator a^2+b^2+2ab and then treated as difference between squares (a+b) (a+b) + 2ab.
- Most candidates struggled to factorise difference between 2 squares some cancelled $\frac{a^2+2ab+b^2}{a^2-b^2}$ = 2ab.

Question 2a

The question demanded candidates to factorise the polynomial 6 m^3 – 19 m^2 + m + 6. Candidates had to find factors of 6 and substitute into the polynomial to get the first factor and proceed to long division. Most candidates got 2 out of 6 marks. An attempt to find a factor and long division earned them 2 marks.

Common errors: treating it as a quadratic expression. They could multiply 6m^3 x 6 and later find factorings summing -19.

- most candidates swamped m with x and also equated the expression zero.
- after finding the quotient most candidates used quadratic formula and then reverted to factors.
- after long division candidates factorised the quotient even if the reminder was not zero.

Question 2b

The question asked the candidates to find probability. It was an open question demanding demonstration of multiplication of probabilities. It was attempted by most candidates and most got 2 out of 5 marks.

Common errors were:

- candidates applied without replacement hence reducing sample of pens i.e. $^3/_8$then $^2/_7$
- candidates had difficulties adding fractions e.g$^{10}/_{56}$+ $^{15}/_{26}$= $^{25}/_{112}$
- on multiplication $^3/_8$x $^5/_{87}$ = $^{15}/_8$, most candidates multiplied numerator and not denominator

Question 3a

The question demanded proof of a theorem. It was attempted by many though 2 out of 5 marks were obtained.

Common errors :

- most candidates were constructing than proving
- most candidates wrote descriptive essays than proof
- the congruent was missing instead similar and equal terms were used

Question 3 b

Candidates were asked to demonstrate logarithmic skills. It was attempted by many who also got 2 out of 6**.**

Common errors:

- from 2 log y = log (3y + 4) , y was treated as a power i.e. $2^y = 3y + 4$
- antiloging before powering e.g. 2 log y = log (3y +4)

$$2y = 3y + 4 .$$

This emanated from candidates cancelled log i.e $\frac{2 \log y}{log} = \frac{\log(3y+4)}{log}$

$$2y = 3y + 4$$

- expanding **RHS** i.e. log (3y + 4) = log 3y + log 4

Question 4a

The question asked candidates to express $\overrightarrow{RT}$ in terms of **P** and **Y**

It was attempted by many and the common mark obtained was 2

Common errors

- most candidates applied Pythagoras theorem. Probably because of vertex P which looked like right angle. So $PR^2 + PQ^2 = RQ^2$
- writing $\overline{P} - \overline{r}$ in their final response than $\overline{r} - \overline{P}$.

Question 4b

The question demanded skills in construction of a circle and a tangent as well as bisecting a line. It also required them to measure and state the length of **OC**.

- most candidates attempted it and got 1 mark. This mark came from drawing a circle.

Common errors were

- free hand drawing
- changing radius from the given 4 cm
- failure to construct tangent but only drew the tangent without using arcs.

Question 5a

The question asked candidates to show angle **DBC** = angle **ABD**. The question was not popular and most candidates failed. Candidates were asked to apply angles in alternative segment find angle **BAD**. They also needed to recall angle **ADB** = 90º, thus an angle in a semicircle, then use third angle property.

Common errors

- adding of $\hat{\mathbf{A}} + \hat{\mathbf{C}} = 180^o$ using cyclic Quadrilateral property
- proving by congruency
- considering $\mathbf{B\hat{A}D} = 90^o$ on the basis that it was opposite $\mathbf{B\hat{C}D}$
- writing an angle was another challenge e.g. **D** instead of angle **ADB** or angle **BDC**

Question 5b

The question demanded candidates to find the number of elements in the intersection of three sets. It popular with most getting 1 mark. Most candidates went straight to an answer i.e. n (x'nynz) = 1

Common errors

- using curl brackets ( ) or { }
- writing the cardinal number as a set {1}

Question 6a

The question asked candidates to formulate four inequalities with the limitations given. It was popular and most got 2 marks from y $4\begin{matrix} y \geq & 4 \\ x & \geq 0 \end{matrix}$

Common errors

- writing inequalities without variables i.e. $250 \leq 8000$
- using equal sign instead of inequality sign
- misplacing variables e.g. 250g instead of 250*x*
- using their own variables instead of *x* and y.

Question 6b

The question demanded candidates to make use of planes – Pythagoras Theorem and Trigonometric ratios. It was a popular question although most candidates got 2 marks.

Common errors

- Squaring 7 to find 14 i.e. $\mathbf{DC}^2 + \mathbf{CF}^2 = \mathbf{DF}^2$

  $7^2 + 7^2 = \mathbf{DF}^2$

  $14 + 14 = \mathbf{DF}^2$

- extracting angle ADF and claiming its isosceles **DF** = 9.8 cm and consequently claiming **AF** = 9.8 cm.

Section B

Question 7a

The question demanded candidates to draw a table of deviations using the given data. The question was not popular and most candidates failed. The following common errors were made:

- adding mid-interval i.e.

  = 6.45 + 9.45 + 12.45 + 15.45

  = 43.80 instead of multiplying without frequency

- dividing the total by 4 instead of 26.
- treating mean as variance.

Question 7b

The question demanded candidates to calculate variance. It was not popular and many candidates failed it.

Question 8

The question required the candidates to calculate the distance and the bearing. Candidates were supposed to sketch the bearing of **P** and **R** from **Q**. The question was popular though most got 2 marks only for attempting to show direction of **P** and bearing of **R** from **P**.

Common errors

- drawing **W** to the East
- using sine instead of cosine in the cosine rule i.e. $a^2 = b^2 + c^2 - 2bc \sin A$
- solving like a velocity time graph.
- failure to use cosine rule properly i.e. (2p + r) Cos Q/

Question 9

The question asked candidates to find sum of AP. They were supposed to find first term (a) and common difference (d) using the given information. This question was not popular and most of the candidates who attempted it got 5 marks.

Common errors

- equating 4^{th} term to 3 and 12^{th} term to 10 i.e.

$$a + 3d = 3$$

$$a + 11d = 10$$

- subtracting terms without brackets: i.e. a + 11d –a + 3d instead of (a + 11 d) - (a + 3 d)
- equating expressions to 56 i.e. $a + 11d = 56$

$$a + 3d = 56$$

- failing to solve equations without fractions

Question 10

The question asked candidates to calculate without a particular variation equation substitute given values find constants and find costs given the songs. It was a very popular question and the average score was 8 marks.

Common errors were

- failing to formulate partial variation i..e $C \alpha$ S or $C \alpha$ A + S
- failing to substitute correctly some were putting values of C as S and vice versa
- adding 100000 +250000 = K350000

Question 11

The question demanded candidates to solve simultaneous equation. It was very popular and many candidates got 3 marks. Candidates were able to make *x* or y subject and substitute into the second equation, isolated *x* and substituting it in the other equation.

Common errors were:

- isolating *x* or y and substituting in the same equation
- after finding $x = 3$, candidates were substituting it

in $y = x + 3$

$y = 3 + 3$

$y = 9$

Question 12

The question demanded candidates to complete the table of values, draw the graph of $y = x^2 + x = 6$. It was a popular question and most candidates got 2 marks for the scales.

Common errors were:

- formulating their own lines instead of using the given graph paper
- solving simultaneous equations rather than using the graph

$x^2 + x - 6 = 2x + 2$

$x^2 - x - 8 = 0$

D. Recommendations to:

(i) Schools

Schools should:

- ensure adequate coverage of the syllabus
- conducting assessments regularly
- Teachers should be encouraged to read and use Chief Examiners Reports

(ii) Ministry of Education

The Ministry should:

- provide enough Teaching and Learning Materials to secondary schools
- recruit more Mathematics teachers in all schools